

Installation and Operating Instructions

MAN0706 Rev. 1.0 Dec. 2003 edition

Horizontal Display and Storage

BB380r-2 Door **BB580r-3 Door** **BB780r-4 Door**

SKOPE Backbar Remote Chillers



Model: BB380r-2SW

SKOPE[®]
Refrigeration

CONTACT ADDRESSES

Designed and Manufactured by



New Zealand

SKOPE INDUSTRIES LIMITED

PO Box 1091, Christchurch

New Zealand

Freephone: 0800 947 5673

Fax: (03) 983 3896

E-mail: enquiry@skope.co.nz

Website: www.skope.co.nz

Australia

SKOPE AUSTRALIA PTY LTD

A.C.N. 000 384 270

PO Box 7543, Baulkham Hills B.C.

NSW 2153, Australia

Freephone: 1800 121 535

Fax: 1800 121 533

E-mail: enquiry@skope.com.au

Website: www.skope.com.au

Middle East

SKOPE INDUSTRIES MIDDLE EAST

PO Box 37663, Dubai

United Arab Emirates

E-mail: skopeme@emirates.net.ae

BB380r-2, BB580r-3, BB780r-4
SKOPE Backbar Remote Chiller
Installation and Operating Instructions

MAN0706

Rev. 1.0 Dec. 2003 edition.

Published by
SKOPE Industries Limited,
Christchurch, New Zealand.

Copyright © 2003
SKOPE Industries Limited.
All rights reserved.

SKOPE and CYCLONE are
registered trademarks of
SKOPE Industries Limited.

SKOPE Industries Limited reserve the
right to alter specifications without
notice.



TABLE OF CONTENTS

1 SPECIFICATIONS

1.1 Cabinet and Refrigeration Unit	6
--	---

2 INSTALLATION

2.1 Positioning of Machine	7
----------------------------------	---

2.2 Refrigeration System	9
--------------------------------	---

3 OPERATION

3.1 Safety Information	11
------------------------------	----

3.2 Operation of Machine	12
--------------------------------	----

3.3 Loading	12
-------------------	----

3.4 Cleaning	13
--------------------	----

3.5 Servicing	13
---------------------	----

4 ELECTRONIC CONTROLLER

4.1 Controller Display	14
------------------------------	----

4.2 Controller Operation	15
--------------------------------	----

4.3 Programming Controller	16
----------------------------------	----

4.4 Parameters	18
----------------------	----

4.5 Display Alarms	19
--------------------------	----

1 SPECIFICATIONS

1.1 Cabinet and Refrigeration Unit

Cabinet Construction

Finish:	Stainless steel or powdercoated galvanised steel
Insulation:	50mm thick, polyurethane foam Cyclo-iso Pentane blowing agent: C ₅ H ₁₀ /C ₅ H ₁₂

Dimensions

Models:	BB380r-2	BB580r-3	BB780r-4
Doors:	2 Door	3 Door	4 Door
Height:	920mm*	920mm*	920mm*
Width:	1355mm	1915mm	2475mm
Depth (Solid Back):	590 - 600mm (with bench top)		
Depth (Pass-Thru):	655 - 670mm (with bench top)		
Floor area:	0.81m ²	1.14m ²	1.48m ²
Internal volume:	380 litres	580 litres	780 litres

Electrical

Power supply:	220-240 V a.c. 50 Hz, single phase power supply		
Run Amps:	See rating label inside cabinet		
Interior light:	1 x 36 Watt	1 x 58 Watt	1 x 58 Watt

Refrigeration Unit

Product temp:	+1°C to +4°C		
Rated ambient:	32°C at 65% RH		
Evap. capacity	480 Watts	615 Watts	850 Watts
Evaporator:	CLS9902R		
TX valve - R134a	VAL7923		
TX valve - R404A	VAL9641		
TX valve - R22	VAL9643		
Orifice:	'0X' REF9761	'00' REF7596	'00' REF7596
Refrigeration tail Ø:	Liquid line: 1/4" Suction line: 3/8"		
Drain Ø:	19mm O.D.		

* Height excludes castors or legs

2 INSTALLATION

2.1 Positioning of Machine

Castors / Legs

If your SKOPE Backbar chiller has been supplied with either the optional adjustable height castors or adjustable legs (packed with the cabinet), they should be fitted to the base of the cabinet before final positioning of the chiller.

Siting chiller

When installing the chiller it is important to consider the location and physical environment where the chiller is to be positioned. When siting the chiller, avoid direct sunlight and warm draughts etc. Maximum recommended operating ambient temperature is 32°C at 65% RH, and for tropical machines is 40°C at 75% RH.

Adequate allowance should be made for door opening. The chiller must be positioned on a level surface for the doors to shut and seal correctly, and to prevent the condensate tray from overflowing.

Shelves

Remove all packaging material from the shelves. Clip the shelf support brackets into the shelf support strips, at the desired heights, and fit the shelves.

Shelves may be positioned at different heights to suit various products. Always ensure that the shelf clips are securely engaged in each of the shelf support strips. Shelf support strips are marked '+' for easy location of shelf clips.

2 INSTALLATION

Mains flex

The mains flex exits below the refrigeration unit front cover. Initial retrieval of the mains flex is from inside the refrigeration unit compartment, behind the unit front cover. To retrieve the mains flex:

1. Open the unit front cover: firstly undo the fixing screw at bottom of cover, then lift the cover up from the bottom and swing open.
2. Pull the mains flex fully out from the unit compartment, and remove the rubber band.
3. Push the unit end of flex into the grey plastic clip beside the front cover bottom hinge, and close the plastic clip over the flex, ensuring it is held firmly in place.
4. The mains flex can now be run under the cabinet, and plugged into a power socket
5. Close the unit front cover: by lifting the cover up from the bottom and pushing firmly closed. Remember to refit the bottom fixing screw.

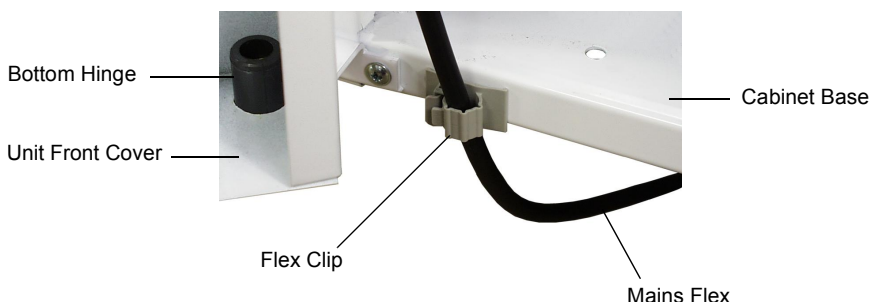


Figure 1: Mains Flex

2 INSTALLATION

2.2 Refrigeration System

Drain

A 500mm long, 19mm O.D. PVC drain hose is supplied. All drainage is to conform to local regulations, covering removal of condensate to waste water. Ensure drain is trapped with adequate fall. Venting the drain may be required for a restrictive run.

Refrigeration lines

A 1/4" liquid line, and 3/8" suction line are provided to attach pipe lines to. The suction lines must be insulated.

NOTE: The electronic controller supplied with the cabinet can switch a solenoid. No solenoid is supplied with the remote unit.

Refrigeration Practice

Installation must be performed by a refrigeration tradesperson, to an appropriate standard complying with all local regulations.

Performance depends on the overall installation (including condensing unit). Cabinet suitability must always be quantified for the application. The final responsibility for condensing unit performance and component selection rest with the installer. The installer must check matters such as:

- Heat load
- Refrigeration load
- Variable operating conditions (usage, ambient, humidity)
- Refrigeration pipe sizing
- Refrigeration pipe length (distance, elevation, pressure drop)
- Location and ventilation (cabinet and condensing unit)
- Drainage

2 INSTALLATION

- Power supply
- Unit is fully evacuated prior to charging
- All cabinet penetrations are sealed

Electrical

The cabinet is supplied with a 3-core 10 Amp mains flex and plug. The cabinet lighting and centre pillar heater elements are protected by a 3 Amp fuse, located in the unit junction box.

If a solenoid is fitted and controlled by the electronic controller, the solenoid will need connected to the connector block inside the unit junction box.

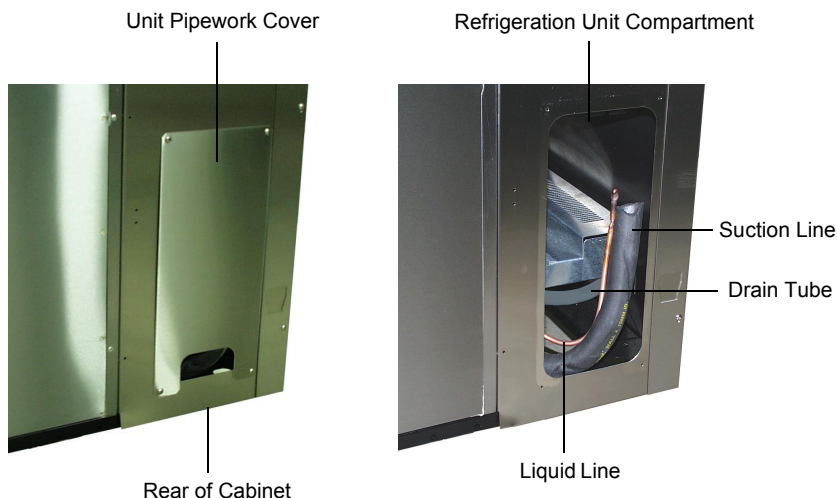


Figure 2: Refrigeration Pipework

3 OPERATION

3.1 Safety Information

When using any electrical appliance, safety precautions should always be observed. Read these instructions carefully, and retain for future reference.

- Do not use this appliance for other than its intended use.
- Only use this appliance with voltage specified on the rating label.
- Ensure adequate ventilation of SKOPE refrigeration unit.
- Be careful not to touch moving parts and hot surfaces.
- Do NOT cover the grilles or block the entry or exhaust of airflow by placing objects up against the refrigeration unit.
- Do NOT probe any opening.
- Regulations require that all electrical work be carried out by authorised persons. For your own safety and that of others, ensure this is done.
- If the refrigeration unit is required to be installed or removed from the cabinet, ensure all necessary safety precautions are observed.

Warning:

Do NOT overload power supply.

Caution:

Disconnect machine mains power supply before attempting to perform any electrical service or maintenance.

3 OPERATION

3.2 Operation of Machine

Plug in machine and check operation of the refrigeration unit and lights. The electronic controller and evaporator fan motor should operate initially. Note: If the solenoid valve is fitted, and operated by electronic control, then the solenoid should open when compressor indicator is shown.

Checking operation

- The solenoid / compressor relay should switch off when cabinet internal temperature reaches approximately +1°C, and on again at approximately +4°C. The internal cabinet air will continue to circulate at all times.
- The light switch, located next to the electronic controller on the refrigeration unit front cover, activates the cabinet interior lighting and can be switched on or off as required.
- For efficient operation, ensure the door gaskets form a good seal with the cabinet.

3.3 Loading

For even cooling and efficient operation, allow air space around packages etc. Do not allow products to overhang the front of shelf as this could prevent the door from shutting or cause glass breakage.

Important:

Leave air space above product on the top shelf, as well as a gap of approximately 50mm next to the return air grille between the cabinet interior and the refrigeration unit compartment.

3 OPERATION

3.4 Cleaning

When necessary, wash both interior and exterior of cabinet with soapy water. Exterior of cabinet may be waxed with automobile polish for extra protection. Ensure the machine is disconnected from the mains power supply before washing the cabinet with water.

Do not wipe the sealant off the swing door gaskets, as the sealant ensures the door gaskets form a good seal with the cabinet.

Caution:

Disconnect machine from mains power supply before washing the cabinet with water.

3.5 Servicing

Servicing should be carried out by an authorised service agent. Detailed service and spares information is available in the SKOPE Backbar Remote Operating and Service Manual - P/No: MAN0707.

4 ELECTRONIC CONTROLLER

4.1 Controller Display



Figure 3: Controller Display

Item	Key	Function
1		SET: Press to display target set point. In programming mode it selects a parameter or confirms an operation
2		DEFROST: Press to start a manual defrost
3		UP: Press to see the maximum stored temperature. In programming mode it browses the parameter codes, or increases the displayed value
4		DOWN: Press to see the minimum stored temp. In programming mode it browses the parameter codes, or decreases displayed value
5		Compressor ON indicator
6		Defrost cycle ON indicator
7		Set Point displayed indicator
8		Decimal point indicator
Key Combinations:		
	 + 	Press to lock and unlock the keypad
	 + 	Press to enter the programming mode
	 + 	Press to return to the room temperature display

Table 1: Controller Operation

In normal operating conditions the controller can permanently display one of the following:

4 ELECTRONIC CONTROLLER

- 1. Internal cabinet temperature (standard parameter 'Lod' = P1)
- 2. Setpoint (parameter 'Lod' = SP)
- 3. Condensing temperature (parameter 'Lod' = P2)

Meaning of LEDs

Each LED function is described in the following table:

LED	Mode	Function
	ON	Compressor enabled
	Flashing	Programming phase (flashing with ❄) Anti-short cycle delay enabled
	ON	Defrost enabled
	Flashing	Programming phase (flashing with ❄) Drip time in progress
SP	ON	The Set Point is displayed

Table 2: LED Functions

4.2 Controller Operation

The SKOPE electronic controller controls and displays the cabinet temperature. The preset temperature setting controls internal air temperature between 1°C and 4°C. For compressor protection the control has built in minimum off cycle time of 3 minutes, and features regular timed defrost cycles (compressor off, evaporator fans on).

Probe One is fitted to a bracket in the return evaporator airflow. This probe is used for both temperature control and display.

Probe Two is cable tied in place with an insulated cover. This probe is not active.

4 ELECTRONIC CONTROLLER

4.3 Programming Controller

The controller keypad must always be locked, to prevent unauthorised modification.

To unlock the keypad (to modify parameters)



Press both the **UP** and **DOWN** keys until 'Pon' is displayed.

How to lock the keypad



1. Press and hold both the **UP** and **DOWN** keys for more than 3 seconds.
2. The 'PoF' message will be displayed and the keypad will be locked. At this point it will be possible only to see the Set Point or maximum or minimum temperature stored.
3. If a key is pressed for more than 3 seconds, the 'PoF' message will be displayed.

To display the Set Point



Press, and immediately release the **SET** key. The display will show the Set Point value, and the Set Point LED will be highlighted.

To change the Set Point



1. Push and hold the **SET** key for more than 2 seconds.
2. The value of the Set Point will be displayed, and the  LED will start blinking.
3. To change the Set value, push the **UP** or **DOWN** keys.
4. To memorise the new Set Point value, push the **SET** key again or wait 15 seconds.

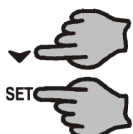
4 ELECTRONIC CONTROLLER

To start a manual defrost



Push and hold the **DEFROST** key for more than 2 seconds.

To change a parameter value



1. Enter the programming mode by pressing and holding both the **SET** and **DOWN** keys for 3 sec. ( and  start flashing).
2. Select the required parameter.
3. Press the **SET** key to display the Set value (now only the  LED is flashing).
4. Press the **UP** or **DOWN** keys to change the Set value.
5. Press the **SET** key to store the new value and move to the following parameter.
6. To exit: Press both the **SET** and **UP** keys, or wait 15 seconds without pressing any keys.
7. To lock in new parameter value: after one minute operation, disconnect and reconnect cabinet into the mains power supply.

NOTES:

1. The Set value is stored even when the procedure is exited by waiting for the time-out to expire.
2. Dependent on customer requirements, the SKOPE electronic controller has different parameter configurations. Parameter configuration 160 = Beverage, and 170 = Food. To establish correct controller parameter configuration, see label on controller housing.

4 ELECTRONIC CONTROLLER

4.4 Parameters

Parameters				
Display	Beverage 160	Food 170	Range	Description of Parameter
SET POINT PARAMETERS				
Set	2	1	LS to US	Set Point
Hy	2	2	0.1°C to 25.5°C	Differential
LS	+1	-1	DO NOT ADJUST	
US	15	5		
PROBE PARAMETERS				
Ot	-0.7	0	DO NOT ADJUST	
OE	0	0		
CONTROL PARAMETERS				
OdS	0	0	DO NOT ADJUST	
AC	3	3		
DISPLAY PARAMETERS				
CF	°C	°C	DO NOT ADJUST	
rES	dE	in		
LoD	P1	P1		
DEFROST PARAMETERS				
IdF	6	6	1 to 120 hours	Interval between defrost cycles
MdF	12	12	0 to 255 minutes	Maximum length for defrost
dFd	dEF	dEF	DO NOT ADJUST	
dAd	20	20		
ALARM PARAMETERS				
ALc	Ab	Ab	DO NOT ADJUST	
ALU	12	7	ALL to 150°C	Maximum temperature alarm
ALL	-2	-2	-50°C to ALU	Minimum temperature alarm
AtH	1	1	DO NOT ADJUST	
ALd	240	120		
dAO	24	24		
tbA	n	n		
PA2	58	58		
AU2	65	65		
ACH	5	5		
dL2	2	2		
dA2	0	0		
AOP	CL	CL		
OTHER PARAMETERS				
dP1	-	-	DO NOT ADJUST	
dP2	-	-		
rEL	-	-		
Ptb	-	-		

Table 3: Controller Parameters

4 ELECTRONIC CONTROLLER

4.5 Display Alarms

A flashing LED indicates an alarm. The following is a list of the alarm displays:

Alarm	Description
	Stage ONE - Maintenance required: Immediately attend condenser (for auto alarm reset).
	Stage TWO - Refrigeration Shut-Down: Condenser over-temperature has shut-down system and cabinet lighting. Attend condenser. To reset alarm, cabinet must be replugged into power supply. For repeat alarms, contact an authorised service agent.
	Faulty Ambient probe (internal cabinet - return air)
	Faulty High Temperature probe (condenser)
	Internal cabinet - LOW temperature alarm
	Internal cabinet - HIGH temperature alarm

Table 4: Controller Display Alarms

Note: Refrigeration system and cabinet lighting shut down with ‘P1’, ‘P2’ and ‘CSd’ alarms.

Alarm Recovery

- Condenser over temperature alarm ‘COH’ recovers when the condenser is either cleaned or cools down.
- Condenser alarm ‘CSd’ temperature recovers by replugging the cabinet power supply (or isolation switch). In this case, all the alarms are reset.